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SNAKES OF THE HOOGSTRAAL EXPEDITIONS  
TO NORTHERN MEXICO

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During the summers of 1938, 1939, and 1940 parties of students of the University of Illinois under the leadership of Mr. Harry Hoogstraal collected a number of reptiles and amphibians in north-eastern Mexico. These were secured either as an integral part of biological surveys (as in Nuevo León) undertaken by Mr. Hoogstraal, or as the party was en route to or from other areas where more intensive work was in progress. The specimens are now incorporated in the reference collections of Field Museum. This report concerns only the snakes. Although these are not numerous, 23 species are represented among the 53 specimens. Among them is an extraordinary number of very unusual or noteworthy specimens. One new race has already been described and a new species is named herein. Equally as important are notable range extensions of six species, and additional specimens that shed considerable light upon the variation and relationships of three other species. Knowing my interest in Mexican snakes, Mr. Karl P. Schmidt of Field Museum generously suggested that I submit a report on this collection. I am greatly indebted to him and to Mr. Clifford H. Pope, also of Field Museum, for the privilege of doing so.

**Leptotyphlops dulcis** Baird and Girard

*Rena dulcis* Baird and Girard, Cat. N. Amer. Rept., pt. 1, p. 142, 1853—  
between San Pedro and Comanche Springs, Texas.

*Leptotyphlops dulcis* Stejneger, Proc. U. S. Nat. Mus., 14, p. 501, 1891.

Hidalgo: Jacala (34412).

This specimen extends the known range of *dulcis* a considerable and unexpected distance of about 300 miles to the south, from central Nuevo León to northern Hidalgo. The specimen seems typical, with an undivided first labial (one scale between ocular and rostral); 215 dorsals from rostral to terminal tail spine; 10 rows of scales about base of tail, 14 around body; 15 subcaudal scales; 7 rows of scales pigmented dorsally. This specimen supports the premise that *dulcis* overlaps *myopicus*.

### **Leptotyphlops myopicus myopicus** Garman

*Stenostoma myopicum* Garman, Mem. Mus. Comp. Zool., 8, p. 6, 1883—Savinetto near Tampico, Tamaulipas.

*Leptotyphlops dulcis myopicus* Klauber, Trans. San Diego Soc. Nat. Hist., 9, pp. 117-120, 1940.

Nuevo León: Ojo de Agua, near Galeana (30615); Horsetail Falls, Santiago, 42 miles south of Monterrey (30616-8, 30824).

This series, with the exception of No. 30824, was discussed by Klauber (l.c.), who records the entire series as from Ojo de Agua, although the Field Museum catalogue cites only one from that locality, the remainder from Horsetail Falls. This correction does not alter Klauber's statements of relationship, however, except that the view that the incomplete suture between the posterior half of the first supralabial and the ocular in the Ojo de Agua specimen is an aberration becomes inferential.

On one side, specimen No. 30824 also has an incomplete suture between the ocular and posterior half of the first supralabial, much as in No. 30615; the dorsal scales from rostral to tip of tail (excluding spine) number 211.

As Klauber states, the evidence of intergradation of the species *dulcis* and *myopicus* is not wholly convincing; there are a number of facts, such as the broad geographic overlap of *dissectus* and *dulcis* and the different geographic trends in variation, that support the conclusion that they are different species.

### **Amastridium sapperi** Werner

*Mimometopon sapperi* Werner, Abhandl. Bayer. Akad. Wiss., 22, p. 349, 1903—Guatemala.

*Amastridium sapperi* Dunn, Proc. U. S. Nat. Mus., 65, Art. 11, p. 1, 1924.

Nuevo León: Santiago, Hda. Vista Hermosa (37140).

The most extraordinary specimen of the collection is this, representing a genus and species not otherwise known north of the Pacific

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slopes of Chiapas near Guatemala. I have compared it directly with a specimen in the United States National Museum (No. 46509) from Chicharras, Chiapas, and aside from a few very minor differences, due probably to age, there is absolutely nothing to indicate that the two specimens are not the same species. So remarkably alike are they that they could well have come from the same spot, in spite of the fact that about 500 miles and several moderately distinct barriers separate the two localities from which they are recorded. It is not usual to find a widely spread species so remarkably uniform, in localities as remote from each other as these; and for this reason it must be clear that the above record must find corroboration before it can be accepted without question. At the present time, however, there is no concrete evidence that it is not correct.

Head of normal size, slightly wider than neck, flattened somewhat, not elongate; tip of snout truncate, rostral covering its anterior face; in profile snout slanting somewhat, projecting farther forward dorsally than at labial border. Only upper edge of rostral visible from above, but this involves two-thirds its maximum width; internasals three-fifths size of prefrontals, their median suture nearly as long as that of prefrontals; frontal (4 mm.) longer than its distance from tip of snout (2.5 mm.), about equal to maximum length of parietals (4 mm.), longer than median parietal suture (2.8 mm.), slightly wider than a supraocular; sides of frontal parallel, posterior angle acute (about 80°), anterior edge straight except for a short median projection between prefrontals. Parietals in contact with both postoculars, narrowly separated from fifth supralabial by the first temporal.

Nasal entire, with an incomplete suture above and below, anterior section longer but lower than posterior section; naris slightly nearer upper than lower margin of nasal; loreal square, in contact with second supralabial and prefrontal; preocular single, lower half much narrower (longitudinal axis) than upper half; two postoculars, upper twice as large as lower; temporals 1-2-3, anterior in contact with lower postocular.

Supralabials 7-7, third and fourth bordering orbit, fifth largest, first smallest, last low and elongate. Infralabials 9-9, the scales of the first pair narrowly in contact medially behind a triangular mental; latter as long as broad; two pairs of elongate chinshields, in contact with five infralabials (first with four, second with two) on each side, anterior slightly broader than but only three-fourths length of posterior.

Dorsal scales smooth, pitless, in 17 rows throughout length of body; 163 ventrals; anal divided; subcaudals 78, divided; total length 256 mm., tail 63 mm.; female.

Dorsal body color dark brownish gray posteriorly, becoming black anteriorly; edges of all posterior scales and of lateral anterior scales dark, center lighter; ventral surfaces heavily stippled, of about same color (brownish gray) as sides of body, with irregular, scarcely visible, unstippled areas scattered over entire area.

On dorsal surface of nape a light area (red in life?) extending three or four scale lengths posterior to parietals, indented medially by a narrow black projection reaching almost to parietals. Top of head brownish, with a light streak extending along the sides of the parietals and through upper postocular to eye; a broad light streak along median parietal suture, bifurcating at frontal and disappearing about halfway to orbit; an irregular light streak on supraocular, near outer edge; prefrontals and internasals with irregular, alternating dark and light longitudinal streaks. Sides of head black, except for a small, well-defined light spot in the middle of each of the anterior five supralabials. Gular region, up to a line somewhat above level of rictus oris, and entire ventral surface of head black, except for scattered, distinct light spots or longitudinal streaks, generally near the middle of the scales.

The adult male from Chicharras, Chiapas (total length 518 mm., tail 140 mm., extreme tip missing), is practically identical in all respects, except that it has keeled supra-anal scales, 151 ventrals and 85 caudals (incomplete); the sides of the head are dimly streaked. The entire body is uniform gray-brown above, except for a small, distinct, light spot on the middle of every second, third or fourth scale of row 5; in general these spots are most clearly defined posteriorly, and are very poorly defined on the neck. The Nuevo León specimen shows evidence of these dots also, similarly placed, in certain parts of the posterior half of the body.

### ***Drymobius margaritiferus margaritiferus* Schlegel**

*Herpetodryas margaritiferus* Schlegel, Ess. Phys. Serp., 2, p. 184, 1837—New Orleans, by error; restricted to Vera Cruz, Vera Cruz.

*Drymobius margaritiferus margaritiferus* Bocourt, Miss. Sci. Mex., livr. 12, pp. 716–718, pl. 49, fig. 2, 1890; Smith, Proc. U. S. Nat. Mus., 92, p. 383, 1942.

Nuevo León: Horsetail Falls, Santiago, 42 miles south of Monterrey (30829).

A single male is typical; scale rows 17-17-15; ventrals 156; tail incomplete; supralabials 9-9; infralabials 10-10; preoculars 1-1; postoculars 2-2; temporals 2-2.

### ***Ficimia olivacea streckeri* Taylor**

*Ficimia streckeri* Taylor, Copeia, 1931, pp. 5-7, 1931—three miles east of Rio Grande City, Texas.

Hidalgo: Jacala (34413).

Nuevo León: Horsetail Falls, 42 miles south of Monterrey (30817).

Both specimens are females; ventrals 147, 150, caudals 35, 34+, supralabials 7-7, infralabials 7-8, 8-8, preoculars and postoculars 1-1, internasals 0-0, respectively. In the absence of internasals and presence of single postoculars both specimens are typical, but in pattern the Hidalgo specimen tends strongly toward *F. olivacea*; it is practically unicolor above, with small, dark spots on the mid-dorsal line, spaced two or three scale lengths apart. These spots are the sole remnants of the distinct crossbands of typical *streckeri*, such as those in the Nuevo León specimen, which has 45 bands on body, 11 on tail. It is noteworthy that the Tuxpan, Vera Cruz, specimens also have indistinct dorsal spots; thus the three southernmost specimens of *streckeri* strongly indicate an intergradation in pattern with *olivacea*. The only other character conspicuously different in the two forms (number of postoculars) shows no clear evidence of intergradation, but the character is inconstant, at least in *olivacea*, and thus should perhaps not be considered as defining a distinct species. One *olivacea* of large size, no dorsal pattern, and no internasals (M.C.Z. 6354) has but one postocular on both sides; conformation of the postoculars and adjacent (fourth) labials is not notably different than in *streckeri*. In view of these facts it appears best to consider *streckeri* a subspecies of *F. olivacea* Gray.

### ***Gyalopion canum* Cope**

*Gyalopion canum* Cope, Proc. Acad. Nat. Sci. Phila., 12, p. 243, 1860—Fort Buchanan, Arizona.

Nuevo León: Galeana (30816).

This specimen considerably extends the known range and affords further data on the variation of this rare species. While five females are recorded by Smith and Taylor (1941, p. 362), only two males are included; the present specimen, a male, is therefore of special interest. It has 125 ventrals, 31 caudals, anal divided, 7-7 supralabials and



infralabials, 1-1 preoculars, 2-2 postoculars, 1-2 temporals, 1-1 internasals; total length 168 mm., tail 24.5 mm. The spots on the body number 46, on the tail 11.

The ventral count of this specimen is four lower than the lowest given by Van Denburgh (129, presumably a male; 1922, p. 778), and nine lower than the males listed by Smith and Taylor (l.c.); yet the total range, 125 to 136, known for all males is not excessive. The number of spots on the body of the Galeana specimen is also five higher than the highest known in other specimens, giving a total range of seventeen for the whole species, yet this difference is scarcely great enough, on the basis of one specimen, to warrant the conclusion that the Galeana specimen represents a different race.

Still another male specimen, recently acquired by Field Museum, is of interest. It is No. 30429, from Mount Livermore, Jeff Davis County, Texas, collected by J. M. and R. G. Schmidt in July, 1938. It has 131 ventrals, 34 caudals, 2-2 temporals, 7-8 infralabials, 41 spots on the body and 12 on the tail, and is otherwise like the Galeana specimen.

### **Lampropeltis thayeri** Loveridge

*Lampropeltis thayeri* Loveridge, Occ. Papers Bost. Soc. Nat. Hist., 5, pp. 137-138, 1924—Miquihuana, Tamaulipas.

Nuevo León: Ojo de Agua, near Galeana (30819-21).

A choice item of the collection is a series of three young specimens of this species, previously known from the single male type. All are females; respectively the scale rows are 21-23-18, 21-22-17, 21-23-18; ventrals 212, 203, 206; caudals 55, 60, 57; supralabials 7-7; infralabials 9-9; preoculars 1-1; postoculars 2-2; temporals 2-2, 2-3, 2-3; total length (in mm.) 280, 255, 248; tail length (in mm.) 42, 44, 40; red bands on body and tail 28 + 7, 26 + 7, 27 + 9. The white bands on the body number the same as the red bands, but on the tail number one more than the red bands. The stomach of one specimen contained a half-grown lizard, *Sceloporus grammicus disparilis*.

The pattern is highly interesting. In two specimens each red band is split medially by a broad, lighter area irregularly bordered by a narrow black line much narrower than the primary black borders of the red bands; the red areas within the red bands are somewhat narrower than the central, lighter area; the lighter area and its dark borders extend laterally no farther than about the fifth or sixth scale rows. In the other specimen the light areas are not

evident, although the red bands are fully as broad as in the preceding specimens. The red bands in all specimens narrow greatly laterally, are separated from each other medially by two to two and one-half scale lengths, laterally by five or six; on the belly they are one or two ventrals wide but usually closed off by black areas, so that there is generally but little evidence of a ringed effect; in fact, many of the blotches are broken or actually terminate laterally on the outer

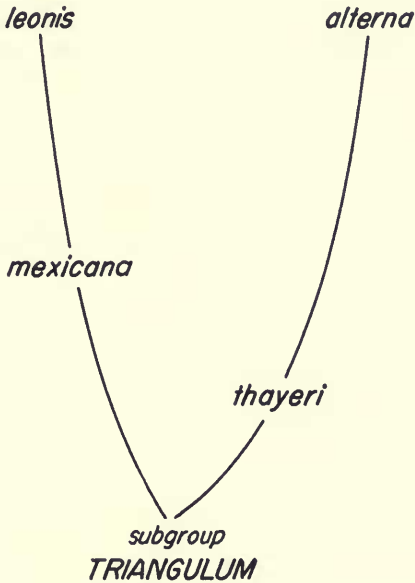


FIG. 18. Diagram of relations in the *triangulum* group.

dorsal scale rows (one to three). The belly is heavily marked with black; many ventrals are black over most of their width, and few are entirely unmarked.

As in *mexicana*, *alterna*, and *leonis*, the areas between the red blotches on the body, and most of the head, are heavily stippled with gray; likewise as in these species, there is a black-bordered, median dorsal red area on the head. In these specimens it is not divided and involves most of the frontal and the anterior edges of the parietals. A dark postocular spot is regularly present.

These specimens show that *thayeri* does not belong with the ringed species (*pyromelana* subgroup) as I recently concluded (1942, p. 206), but rather with the blotched species of the *mexicana* subgroup. It affords an important link between the *mexicana* and *triangulum* sub-

groups, having a pattern intermediate between the ringed one characteristic of the Mexican members of the *triangulum* group, and the blotched one characteristic of other members of the *mexicana* subgroup. The latter subgroup, in its tendency toward development of dorsal blotches from a primitive ringed pattern, has a close parallel in the northern United States members of the *triangulum* group, in which the same type of evolution has occurred.

Of further interest in *thayeri* is the clear indication of the manner of multiplication of the red blotches in this subgroup which is by the development of a central, black-edged, light area across the middle of each red band. Expansion of this light area laterally produces two narrow rings or blotches, each "mixed or split with red," as in *Lampropeltis alterna*. Very possibly by this means also the pattern of more numerous, enlarged blotches in *mexicana* was produced.

The phylogeny of the members of the *mexicana* subgroup is not entirely clear, although all are rather closely interrelated. *L. thayeri* is obviously the most primitive of the series, since the belly is heavily mottled, there is a large nuchal blotch, and a large median red area on the head. Conversely, *leonis* and *alterna* are the most highly modified. Because the pattern modifications of *thayeri* readily explain the pattern evolution of *alterna*, these two are probably directly related; and *leonis*, which retains broader red blotches at the expense of completely suppressed alternate blotches, appears to be directly related to *mexicana*, in which the red bands are about twice as numerous as in *leonis*; the last could have been derived from a *mexicana*-like ancestor simply by loss of about every other red blotch. Thus *alterna* and *leonis*, although closely related, remain as end forms of two different stocks; they parallel each other in the strong tendency toward pattern reduction; they differ from each other somewhat in the manner of the reduction.

The most puzzling question at present regarding the *mexicana* subgroup is as to its origin from and the identity of its closest relative in the *triangulum* subgroup; at present none appears very closely allied.

### **Leptodeira maculata** Hallowell

*Megalops maculatus* Hallowell, Proc. Acad. Nat. Sci. Phila., p. 488, 1860—Tahiti, in error; probably Nicaragua.

*Leptodeira maculata* Taylor, Kans. Univ. Sci. Bull., 25, pp. 337-342, pl. 31, fig. 1, pl. 32, figs. 1-4, pl. 33, figs. 1-3, text figs. 6-7, 1939.

San Luis Potosí: El Pujal (34372).



A single female has 21-23-17 scale rows; 173 ventrals; 63 caudals; 8-8 bands on body, 10 on tail; blotches reaching second or third scale row; belly immaculate, not stippled.

### **Leptodeira annulata septentrionalis** Kennicott

*Dipsas septentrionalis* Kennicott, in Baird, Rept. Mex. Bound. Surv., 2, p. 16, pl. 8, fig. 11, 1859—Matamoros, Tamaulipas.

*Leptodeira annulata septentrionalis* Smith, Proc. Biol. Soc. Wash., 54, p. 117, 1941.

Nuevo León: Los Adjuntos (37030); Ojo de Agua, Sabinas Hidalgo (34418-20); Horsetail Falls, Santiago, 42 miles south of Monterrey (30823).

San Luis Potosí: El Bañito, Valles (37031).

Respectively these specimens have 21-21-15, 21-23-16, 21-23-16, 21-23-16, 21-23-15, 19-21-15 scale rows; ventrals 196, 191, 196, 191, 189, 195; caudals 84 (male), 67, 69 (female), 76, 78, 84 (male); supralabials 8-8; infralabials 10-10; preoculars 3-3; postoculars 2-2; temporals 1-2-3; bands on body and tail respectively 24-13, 21-11, 27-10, 23-15, 21-12, 29-13; posterior edges of ventrals pigmented to some extent in all.

These six specimens are rather uniform in appearance except for No. 37031, which approaches *annulata taylori* to some extent; the body bands are more irregular than in the others, tending to fuse with each other and the halves on either side of the body to alternate with each other; and the blotches narrow considerably on the sides, involving only one to five scales (average about three) on the first row and scarcely touching ventrals. In the other specimens they involve from three to eight scales in the first row, and distinctly involve the ends of the ventrals at least posteriorly. These characters, in the Valles specimen, support the belief that *septentrionalis* and *taylori* intergrade in the latitude of northern Vera Cruz.

Three other specimens, presumably of this race, now missing and not examined by me, were collected: No. 37032 at El Bañito, Valles, San Luis Potosí; and Nos. 37028-9 at Santiago, Hda. Vista Hermosa, Nuevo León.

### **Leptophis mexicanus mexicanus** Duméril and Bibron

*Leptophis mexicanus* Duméril and Bibron, Erp. Gen., 7, p. 536, 1854—Mexico.

*Leptophis mexicanus mexicanus* Bocourt, Miss. Sci. Mex., livr. 15, p. 835, 1897.

San Luis Potosí: El Pujal (34371).

A female has 15-15-11 scale rows, 172 ventrals, 161 caudals, 8-8 supralabials, 11-11 infralabials, 1-1 preoculars, 2-2 postoculars, 1-2 temporals. This specimen appears to be the first known from the state of San Luis Potosí; it has been recorded somewhat farther north at Tampico, Tamaulipas.

### *Masticophis flagellum testaceus* Say

*Coluber testaceus* Say, Long's Exped. Rocky Mts., 2, p. 48, 1823—headwaters of the Arkansas River, Colorado.

Tamaulipas: 21 miles south of Victoria (37138).

I have not seen this specimen.

### *Natrix rhombifera rhombifera* Hallowell

*Tropidonotus rhombifer* Hallowell, Proc. Acad. Nat. Sci. Phila., 6, p. 177, 1858—Arkansas River and its tributaries near the northern boundary of the Creek Nation.

*Natrix rhombifera rhombifera* Clay, Ann. Carnegie Mus., 27, pp. 251-253, 1938.

Nuevo León: Ojo de Agua, near Sabinas Hidalgo (34414-7, 34423-9).

In all five of the males the scale rows are 25-25-21, except in one which drops one row near the anus. In the six females, however, three have an extra pair of scale rows at the middle of the body; one of these, and one with 25 rows, drop a single row near the anus, giving a count of 20 at that point. The supralabials are 8-8 in all, the infralabials 12-12; the preoculars are 2-2 in one (34417), while the remainder have 1-1; the fourth labial enters the orbit in all. Variation in various scale characters and in measurements is given in the following table.

Number	Sex	Ventrals	Caudals	Post-oculars	Total length (mm.)	Tail length (mm.)
34414 . . . . .	♀	142	61	3-3	1141	242
34425 . . . . .	♀	143	60+	3-3	1120±	240±
34426 . . . . .	♀	141	—	2-3	870+	138+
34427 . . . . .	♀	139	57	3-3	1004	212
34428 . . . . .	♀	142	60	3-3	523	112
34415 . . . . .	♂	146	76	3-3	961	247
34416 . . . . .	♂	149	71+	2-2	907+	216+
34417 . . . . .	♂	148	70	3-3	939	231
34423 . . . . .	♂	145	74	2-3	570	139
34424 . . . . .	♂	149	74+?	2-3	951+	233+

The belly is strongly marked, as in typical United States specimens of this race.

**Opheodrys aestivus** Linnaeus

*Coluber aestivus* Linnaeus, Syst. Nat., 12th ed., 1, p. 387, 1766—Carolina.

*Opheodrys aestivus* Linnaeus, Proc. Acad. Nat. Sci. Phila., p. 560, 1860.

Nuevo León: Horsetail Falls, Santiago, 42 miles south of Monterrey (30828).

A single female specimen has 17-17-15 scale rows, 159 ventrals, 114 caudals, 7-7 supralabials, 8-8 infralabials, 1-1 preoculars, 2-2 postoculars, 1-2 temporals. The species has been reported elsewhere in Mexico only from La Vegonia and Matamoros, Tamaulipas.

**Pituophis deppei jani** Cope

*Arizona jani* Cope, Proc. Acad. Nat. Sci. Phila., 12, p. 369, 1861—Buenavista, Coahuila.

*Pituophis deppei jani* Stull, Occ. Papers Mus. Zool. Univ. Mich., 250, p. 2, 1932.

Nuevo León: Ojo de Agua, near Galeana (33564-5).

These two specimens belong to the same form as two very large males I collected in 1939 a few kilometers north of Ixmiquilpan, Hidalgo (U.S.N.M. Nos. 110890-1). The single female (F.M.N.H. No. 33565) has 27-31-23 scale rows, 228 ventrals, 66 caudals, 11-12 infralabials, 3-4 postoculars, and 28-11 body and tail spots. The three males (F.M.N.H. No. 33564, U.S.N.M. Nos. 110890-1, respectively) have 27-29-21, 25-27-19, 27-31-21 scale rows; 228, 224, 222 ventrals; ?, ?, 68 caudals; 11-12, 11-?, 12-12 infralabials; 3-3 postoculars; 26-10, 31-12, 28-? body and tail spots. In all the supralabials are 8-8, the loreals 1-1, prefrontals 2, labials 4 and 5 entering eye, and no azygous scale.

According to Stull's descriptions and keys, three characters distinguish *jani* and *deppei*:

<i>jani</i>	<i>deppei</i>
Spots on body 21 to 25, total 29 to 35.	Spots on body 30 to 44, total 43 to 59.
Anterior interspaces five scales in length or more.	Anterior interspaces four scales in length or less.
Posterior and middle blotches brown, dark-edged, anterior blotches black.	Posterior blotches black, anterior blotches black, middle blotches brown, dark-edged.

In number of spots, the present specimens are referable to *deppei*; in the other two characters they are typical *jani*. Geographically they could be either, since they are from an area unrepresented by other specimens reported in the literature. Since the range of variation in number of spots is incompletely known in *jani* as given by

Stull (seven specimens, one locality), it is to be expected that the known limits will be extended by additional specimens, from other localities. Including the Hidalgo and Nuevo León specimens in *jani*, the total range of variation in number of body spots (21 to 31; range of 11) is still less than that of *deppei* (30 to 44; range of 15). The length of the anterior interspaces seems more constant, shorter in *deppei* and longer in *jani*, and accordingly I believe this character, combined with the character of the color of the posterior body spots, is more diagnostic of the two forms than number of spots, which still shows only slight overlap.

The range of *jani* appears to coincide with the ranges of certain other reptiles confined to the northeastern edge of the plateau, from northern Hidalgo to southeastern Coahuila. It perhaps does not extend westward onto the plains, where typical *deppei* occurs.

### **Rhadinaea montana** sp. nov.

*Type* from Ojo de Agua, Galeana, Nuevo León. No. 30826 Field Museum of Natural History. Female. Collected by Harry Hoogstraal and party, August 11, 1938.

*Paratypes*.—Two, including one topotype (40814) and one from Monterrey, Nuevo León (Acad. Nat. Sci. Phila. No. 15355).

*Diagnosis*.—Eight supralabials; ventrals 170 to 179, caudals 99 to 101; dorsolateral light stripes usually briefly interrupted a short distance behind eye, and again on nape; ends of ventrals not or very feebly dark-spotted; dorsolateral light stripe involving fifth and sixth scale rows; a secondary dark line on eighth scale row, and narrow paravertebral light lines; sides light below dark border of dorsolateral light stripes.

*Description of type*.—Head flattened; length of portion of rostral visible from above one-third length of median suture between internasals; latter a little more than one-half length of median prefrontal suture, the scales about one-third size of prefrontals; frontal pentagonal, anterior edge convex, posterior angle about a right angle; supraoculars in contact with prefrontals, shorter than frontal; latter but little shorter than median suture between parietals; nasal large, completely divided, anterior section subequal in size to posterior section, but latter a little higher; loreal large, quadrangular; two preoculars, lower very small; two postoculars, upper three times as large as lower; temporals 1-2, anterior in contact with both postoculars; 8 supralabials, seventh and eighth largest, third and fourth entering orbit. Ten infralabials, six in contact with chinshields,

five with anterior and two with posterior pair; mental separated from chinshields.

Dorsals smooth, pitless, in 17 rows throughout length of body; ventrals 179; anal divided; 101 caudals, divided; female. Total length 580 mm., tail 188 mm.

*Color.*—Supralabials cream except for the upper half of the posterior three, and the extreme upper edge of the others; a large,

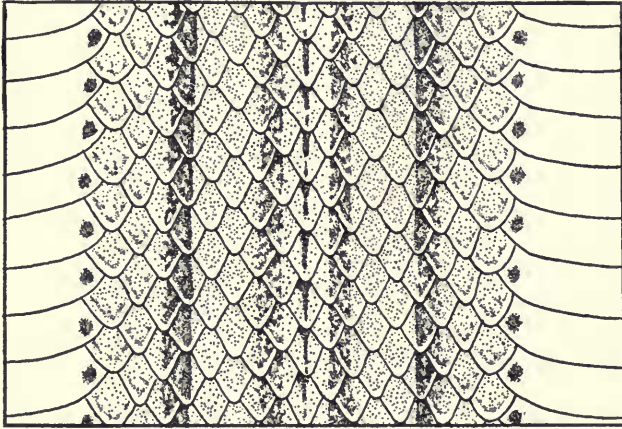


FIG. 19. Pattern of anterior part of body of *Rhadinaea quinquelineata*, from holotype, U.S.N.M. No. 31350, Tezuatlán, Puebla.

irregular black spot near the lower edge of each supralabial; similar spots on anterior infralabials; labials bordered above by a dark line. A light, black-edged line extending from near snout through upper edge of orbit onto the anterior lateral edge of the parietal, there terminating; on posterior tip of primary temporal the line begins again and extends posteriorly a short distance beyond level of angle of mouth, there terminating; the dorsolateral light stripes are very narrowly separated from the nape stripes; head finely mottled with dark brown on light brown, general tone a little darker on sides.

Dorsolateral light stripes involving all of fifth and lower half of sixth rows, and except on neck the upper edge of the fourth row; this stripe dark-edged, the lower border restricted to fourth row; sides below this, and ends of ventrals, lightly stippled; a vertebral dark line, restricted to median row; this bordered on either side by a light gray line involving the paravertebral scale rows and edges of adjacent rows; a fine, dark line bordering this laterally; a brown band involv-



ing adjacent halves of sixth and seventh scale rows. Belly and tail immaculate.

*Variation.*—The topotypic paratype is a juvenile female measuring 251 mm. in total length, tail 76 mm. It has 173 ventrals and 99 caudals, and otherwise is like the type. In pattern it differs only in having the temporal stripe complete, save on one side, where it is broken on the nape posterior to the angle of the mouth.

The Monterrey paratype, according to Bailey (1940, p. 12), is a male with 170 ventrals, 100 caudals, anal ridges, third to fifth labials entering orbit, 1-1 preoculars, one enlarged tooth posteriorly on maxilla; otherwise as in other specimens. It is figured by him (pl. 1, fig. 1) as *quinquelineata*. The only known specimen of *quinquelineata* (the type, U.S.N.M. No. 31350) has fewer caudals (77), a very different pattern (see fig. 19), two enlarged teeth on maxilla, and very distinct dark spots on ends of ventrals. The most notable difference of *quinquelineata* in color pattern (aside from spotting at ends of ventrals) is the width of the dorsolateral light stripes, the inner edge of which marks the middle of the seventh (instead of the sixth) scale row; this light stripe is broad and continuous over nape (interrupted in *montana*). Another conspicuous difference is the length of the mid-dorsal white stripe, which extends unbroken to the extreme posterior part of the neck, where the mid-dorsal dark streak first appears; the latter streak is not continuous on any part of the body, and is not visible at all on the tail. In view of these differences, there is no doubt whatever of the distinctness of *quinquelineata* from *montana*. The Monterrey locality is the northernmost for Mexico.

### **Salvadora lineata** Schmidt

*Salvadora lineata* Schmidt, Field Mus. Nat. Hist., Zool. Ser., 24, p. 148, fig. 15, 1940—Kingsville, Kleburg County, Texas.

Nuevo León: Ojo de Agua, Galeana (30827).

One specimen, a male, has 17-17-13 scale rows, 184 ventrals, 96 caudals, 8-8 supralabials, 10-10 infralabials, 2-2 preoculars and postoculars, loreals 1-1, 2-3-4 temporals; total length 554 mm., tail 150 mm. The second supralabial is in contact with the anterior section of the nasal; the antepenultimate labial is separated from the postocular by a very small scale.

It has been suggested that this species intergrades with *grahamiae* toward the west. This is not impossible, but as Schmidt has emphasized, such intergradation does not occur in the Chisos Mountains

area, where islands of *grahamiae* are isolated in areas of considerable elevation, surrounded not by *lineata*, which does not approach the area, but by *deserticola*, with which, of course, there is no intergradation. If *grahamiae* and *lineata* intergrade, they do so to the north, or south, of the Big Bend region of the Rio Grande.

### *Storeria dekayi* Holbrook

*Tropidonotus dekayi* Holbrook, N. Amer. Herp., 2nd ed., 4, p. 53, pl. 14, 1842—Massachusetts and New York.

*Storeria dekayi* Baird and Girard, Cat. N. Amer. Rept., pt. 1, p. 135, 1853.

Nuevo León: Horsetail Falls, Santiago, 42 miles south of Monterrey (30818).

A male has 17-17-17 scale rows, 134 ventrals, 48 subcaudals, 7-7 supralabials, 6-6 infralabials, 1-1 preoculars, 2-2 postoculars, 1-2 temporals; total length 245 mm., tail 51 mm. There is a black blotch on either side of the nape just behind the head, and another on the sutures between the last two labials, involving both upper and lower labials.

This seems to be the first specimen recorded from the state of Nuevo León.

### *Storeria hidalgoensis* Taylor

*Storeria hidalgoensis* Taylor, Herpetologica, 2, pp. 78-79, 1942—Zacualtipán, Hidalgo.

Nuevo León: Ojo de Agua, Galeana (30822).

A single male has 15-15-14 scale rows; ventrals 128; caudals 55; supralabials 6-6; infralabials 7-7; preoculars and postoculars 2-2; loreals 1-0; total length 266 mm.; tail length 64 mm. The loreal present on one side is small, wedged between the upper edge of the nasal and the upper preocular.

### *Tantilla rubra* Cope

*Tantilla rubra* Cope, Journ. Acad. Nat. Sci. Phila., (2), 8, p. 144, 1876—"Japana" = Tapana (=Tapanatepec, Oaxaca).

Nuevo León: Horsetail Falls, 42 miles south of Monterrey (30825, 40813).

These specimens add still another species to the series known from the vicinity of the above locality; previously recorded were *atriceps*, *deviatrix*, and *wilcoxi rubricata*. The first and last are rather clearly different from *deviatrix* and *rubra*, which have much in com-

mon, as, for instance, the red dorsal color. The chief differences between them seem to be in head pattern; the head cap is jet black (except on the snout, usually whitish), reaching the lip in the temporal and loreal regions, and the lower jaw is conspicuously marked with black in *rubra*, while in *deviatrix* the head cap is black only toward the extreme posterior, does not reach the lip, and the lower jaw is unmarked. While these differences appear meager, the characters involved are rather constant in these as well as other species of *Tantilla*.

*T. rubra* has not been known previously north of southern Puebla, and for that reason the discovery of specimens essentially similar to it as far north as southern Nuevo León raises a number of questions. The specimens are remarkably like others of *T. rubra*, and even fail to show differences that might be construed to indicate a different geographic race. Both are females, with 159 and 167 ventrals, ? and 62 caudals, 7-7 supralabials and infralabials, and 1-2 temporals, respectively. The first infralabials are in contact medially behind the mental. The light nuchal collar involves the tips of the parietals (barely in No. 40813); in the latter the collar is narrowly split by a longitudinal dark line, and the entire snout is black except for a small, white area surrounding the second supralabial. In No. 30825 the snout is light brown posteriorly to near the posterior edge of the internasals; most of the sutures anterior to this point are black. In each the body is red above, whitish below; in No. 40813 there is a tiny black spot at the posteroventral edge of each scale in the outer row of dorsals. The lower lip is marked with black much as shown in the figures in Taylor (1940, p. 482, fig. 9).

The discovery of a possibly isolated population of *rubra* in northern Mexico, showing no uniform or average differences from typical specimens, parallels the existence, long known, of a similar, apparently isolated group in southern Puebla. The typical population on the Pacific slopes of the Isthmus of Tehuantepec appears to be completely isolated from that of southern Puebla. Accordingly, *rubra*, so far as known at present, consists of three geographically distinct populations. It is obvious that these may well show recognizable average differences when larger series from each area are available.

### ***Thamnophis sauritus proximus* Say**

*Coluber proximus* Say, Long's Exped. Rocky Mts., p. 187, 1823—stone quarry on west side of Missouri three miles above the mouth of Boyer's River.

*Thamnophis sauritus proximus* Ruthven, Bull. U. S. Nat. Mus., 61, p. 98, 1908 (part).

Nuevo León: Galeana (34421-2).

Two males are typical, with 169 and 167 ventrals, and each with 109 caudals.

### **Crotalus lepidus lepidus** Kennicott

*Caudisona lepida* Kennicott, Proc. Acad. Nat. Sci. Phila., 13, p. 206, 1861—Presidio del Norte and Eagle Pass, Texas.

*Crotalus lepidus lepidus* Gloyd, Occ. Papers Mus. Zool. Univ. Mich., 337, p. 4, 1936.

Nuevo León: Ojo de Agua, near Galeana (30851-3).

These specimens have been studied by Gloyd (1940, pp. 104-109).

### **Crotalus molossus molossus** Baird and Girard

*Crotalus molossus* Baird and Girard, Cat. N. Amer. Rept., pt. 1, p. 10, 1853—Fort Webster, Santa Rita del Cobre, New Mexico.

*Crotalus molossus molossus* Gloyd, Occ. Papers Mus. Zool. Univ. Mich., 325, p. 2, 1936.

Nuevo León: San Juan, near Galeana (30847-8).

These specimens have been studied by Gloyd (1940, pp. 151-160), who states that they are intergrades with *C. m. nigrescens*.

### **Crotalus triseriatus miquihuanus** Gloyd

*Crotalus triseriatus miquihuanus* Gloyd, Spec. Publ. Chicago Acad. Sci., 4, pp. 102-104, pl. 10, 1940.

Nuevo León: Ojo de Agua, near Galeana (30849, paratype); Cerro Potosí, near Galeana (30850, holotype).

The above-mentioned specimens were described by Gloyd (l.c.).

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